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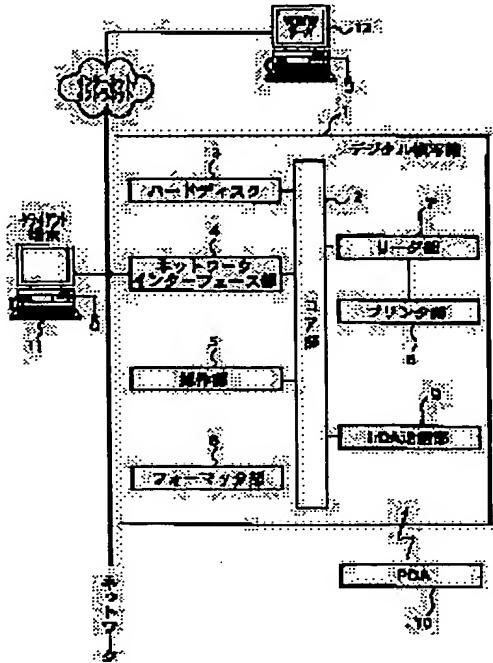
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(54) METHOD, DEVICE, AND SYSTEM FOR IMAGE FORMATION AND COMPUTER READABLE STORAGE MEDIUM

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an image forming device which realizes the access to a WWW(world wide web) server from a portable terminal and can print its access information.

SOLUTION: A user of a PDA 10 sends only connection destination information like URL of a WWW server 12 to a digital copying machine 1 through an IrDA communication part 9, and required information is acquired and printed from the WWW server 12 by the copying machine 1. Thus, the access to the WWW server is made practical even if a display part or a memory of the PDA 10 is not sufficient as an access machine of the WWW server. Further, status information related to print can be returned to the PDA 10 by the IrDA communication part 9 to obtain information indicating whether print is normally completed or not.



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entitled "METHOD, DEVICE, AND SYSTEM FOR IMAGE FORMATION
AND COMPUTER READABLE STORAGE MEDIUM"

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Page 2, column 1, line 1 to page 12, column 21, line 28

[What is Claimed is:]

10 [Claim 1] An image forming apparatus having connection destination setting means for setting a connection destination on a network in accordance with connection destination designation information, data obtaining means for obtaining data of the connection destination set by said connection destination setting means, image forming means for generating printing data from the data obtained by said data obtaining means, and printing means for printing the printing data generated by said image forming means, the image forming apparatus comprising:

15 a connection destination designating device for transmitting said connection destination designation information to said connection destination setting means; and

20 wireless communication means for performing wireless communication.

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[Claim 2] The image forming apparatus as claimed in

claim 1 further comprising status informing means for informing status information concerning printing to said connection destination designating device via said wireless communication means.

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[Claim 3] The image forming apparatus as claimed in claim 1, wherein said wireless communication means performs communication with infrared radiation.

10 [Claim 4] The image forming apparatus as claimed in claim 1, wherein said wireless communication means performs communication with electric wave.

15 [Claim 5] An image forming method using an image forming apparatus which has connection destination setting means for setting a connection destination on a network in accordance with connection destination designation information, and obtains data of the connection destination set by said connection destination setting means to print printing data 20 corresponding to said connection destination data, the image forming method being characterized in:

transmitting said connection destination designation information to said connection destination setting means from an external connection destination designating device via a 25 wireless communication means;

obtaining data of the connection destination set by said

connection destination setting means, and printing the printing data corresponding to said data; and then
informing the status information concerning said printing to said connection destination designating device via
5 said wireless communication means.

[Claim 6] The image forming method as claimed in claim 5, wherein said wireless communication means performs communication with infrared radiation.

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[Claim 7] The image forming method as claimed in claim 5, wherein said wireless communication means performs communication with electric wave.

15 [Claim 8] An image forming system including an information storing device provided on a network and connection destination setting means for setting a connection destination on said network which includes said information storing device in accordance with connection destination
20 designation information, and having an image forming apparatus for obtaining data of the connection destination set by said connection destination setting means to print printing data corresponding to said data, and a connection destination designating device for setting said connection destination
25 designation information, the image forming system being characterized in that a wireless communication means for

performing wireless communication with said connection destination designating device is provided to said image forming apparatus.

5 [Claim 9] The image forming system as claimed in claim 8, wherein status informing means for informing status information concerning printing to said connection destination designating device via said wireless communication means is provided to said image forming apparatus.

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[Claim 10] A computer readable storing medium storing a program having:

command receiving step of receiving at least a connection destination designation command transmitted from a 15 connection destination designating device via wireless communication means;

data obtaining step of obtaining data from the connection destination on a network in accordance with said connection destination designation command;

20 printing data generating step of generating printing data from the data obtained in said data obtaining step; and

printing process step of printing the printing data generated in said printing data generating step.

25 [Claim 11] The computer readable storing medium as claimed in claim 10, wherein said program further has status

information informing step for informing status information concerning printing to said connection destination designating device via said wireless communication means.

5 [Detailed Description of the Invention]

[Field of the Invention]

The present invention relates to an image forming apparatus, image forming system and image forming method having the function of accessing to a World Wide Web server 10 (called WWW server, hereinafter), and relates to a computer readable recording medium for performing the image forming method.

[Description of Prior Arts]

15 Recently, it has become possible to connect a WWW server having various information to a computer having a specific software for accessing the WWW server by HTTP (Hyper Text Transfer Protocol) (called browser) on a network, so as to refer the information on the WWW server from the computer.

20 As a result, not only the information on a special WWW server is referred and shared by a plurality of computers, but also the information on the WWW server is able to be stored in the computers by the aforementioned browser. Accordingly, a user has been able to print the information on the WWW server 25 by designating output printing of the information once stored in the computer to an information equipment having the

function of printing.

If the aforesaid information equipment having the function of printing itself has the function of accessing to a WWW server, the information equipment is able to directly 5 access to the WWW server designated by a user and obtain the information to perform printing. This function of accessing to the WWW server is included in not only desktop type computers but also note type computers and personal portable terminals called PDA.

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[Subjects To Be Solved By the Invention]

When a small-size portable terminal device, such as PDA, is used as a WWW access equipment, information should be obtained by accessing to a WWW server with such a method as 15 connecting via a telephone circuit. However, the display part thereof is too small for a user to watch those information, and thus that has been impractical.

As measures for solving this problem, a method of storing the data once obtained and connecting with a printer, 20 a method of transferring the data to another computer having a large screen to watch the information, and the like are considerable. However, a small-size WWW access equipment with a limited memory had limitation to the amount of the obtainable information, and was inconvenient for use.

25 Considering the aforementioned conventional problems, the present invention aims to provide an image forming

apparatus, image forming system and image forming method, which are able to access to a WWW server from a portable terminal and print its access information, and a computer readable storing medium for performing the image forming

5 method.

[Means for Solving the Subjects]

To accomplish the aforementioned objects, the image forming apparatus relating to the invention described in claim 10 1 is an image forming apparatus having connection destination setting means for setting a connection destination on a network in accordance with connection destination designation information, data obtaining means for obtaining data of the connection destination set by the connection destination setting means, image forming means for generating printing data from the data obtained by the data obtaining means, and printing means for printing the printing data generated by the image forming means, the image forming apparatus including a connection destination designating device for transmitting the 15 connection destination designation information to the connection destination setting means, and wireless communication means for performing wireless communication.

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The image forming apparatus relating to the invention described in claim 2 further includes, in the invention described in claim 1, status informing means for informing 25 status information concerning printing to the connection

destination designating device via the wireless communication means.

According to the image forming apparatus relating to the invention described in claim 3, in the invention described in 5 claim 1, the wireless communication means performs communication with infrared radiation.

According to the image forming apparatus relating to the invention described in claim 4, in the invention described in claim 1, the wireless communication means performs 10 communication with electric wave.

The image forming method relating to the invention described in claim 5 is an image forming method using an image forming apparatus which has connection destination setting means for setting a connection destination on a network in 15 accordance with connection destination designation information, and obtains data of the connection destination set by the connection destination setting means to print printing data corresponding to the connection destination data, the image forming method being characterized in transmitting the 20 connection destination designation information to the connection destination setting means from an external connection destination designating device via a wireless communication means; obtaining data of the connection destination set by the connection destination setting means, 25 and printing the printing data corresponding to the data; and then informing the status information concerning the printing

to the connection destination designating device via the wireless communication means.

According to the image forming method relating to the invention described in claim 6, in the invention described in 5 claim 5, the wireless communication means performs communication with infrared radiation.

According to the image forming method relating to the invention described in claim 7, in the invention described in claim 5, the wireless communication means performs 10 communication with electric wave.

The image forming system relating to the invention described in claim 8 is an image forming system including an information storing device provided on a network and connection destination setting means for setting a connection 15 destination on the network which includes the information storing device in accordance with connection destination designation information, and having an image forming apparatus for obtaining data of the connection destination set by the connection destination setting means to print printing data 20 corresponding to the data, and a connection destination designating device for setting the connection destination designation information, the image forming system being characterized in that a wireless communication means for performing wireless communication with the connection 25 destination designating device is provided to the image forming apparatus.

According to the image forming system relating to the invention described in claim 9, in the invention described in claim 8, status informing means for informing status information concerning printing to the connection destination 5 designating device via the wireless communication means is provided to the image forming apparatus.

The computer readable storing medium relating to the invention described in claim 10 stores a program having at least command receiving step of receiving at least a 10 connection destination designation command transmitted from a connection destination designating device via wireless communication means; data obtaining step of obtaining data from the connection destination on a network in accordance with the connection destination designation command; printing 15 data generating step of generating printing data from the data obtained in the data obtaining step; and printing process step of printing the printing data generated in the printing data generating step.

The computer readable storing medium relating to the 20 invention described in claim 11, in the invention described in claim 10, the program further has status information informing step for informing status information concerning printing to the connection destination designating device via the wireless communication means.

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[Description of Preferred Embodiments of the Invention]

An embodiment of the present invention is described below referring to the drawings.

Fig. 1 is a block diagram showing the schematic construction of the image forming system relating to an 5 embodiment of the present invention.

A digital copying apparatus 1 which plays an important part of this system has a core part 2, hard disk 3, network interface 4, operation part 5, formatter part 6, digital image reading part (called "reader part", hereinafter) 7, digital 10 image printing part (called "printer part", hereinafter) 8 and IrDA communication part 9.

The core part 2 integrates all of these composition elements to operate them coordinately. The hard disk 3 stores image data and various programs. The network interface part 4 15 has the function of communicating with an external equipment via a network. The operation part 5 performs designation of operation on the digital copying apparatus 1 to the self apparatus. The formatter part 6 converts the print data transmitted from an external device via the network to a 20 printable format by the digital copying apparatus 1. The printer part 8 is arranged below the reader part 7 and has the function of output printing a digital image. The IrDA communication part 9 receives information, such as URL, from outside via the infrared communication.

25 A PDA 10, which is a personal information terminal capable of IrDA communication, is provided in the vicinity of

the digital copying apparatus 1. A client terminal 11 for performing operational designation to the aforesaid digital copying apparatus 1 and a WWW (World Wide Web) server 12 are connected to the network.

5 Fig. 2 is a sectional view of the reader part 7 and the printer part 8.

A document feeding device 71 of the reader part 7 feeds original documents one by one in the order from the last page onto a platen glass 72, and discharges the document on the 10 platen glass 72 after completing the reading operation of the document.

When the document is transported onto the platen glass 72, a lamp 73 is turned on, and a reader unit 74 is started moving to expose and scan the document. Reflection light from 15 the document in this case is led to a CCD image sensor (called "CCD", hereinafter) 79 by mirrors 75, 76 and 77 and a lens 78. The image of the document scanned in this way is read by the CCD 79.

The image data outputted from the CCD 79 is performed a 20 predetermined process, and then transferred to the printer part 8 and the core part 2. A laser driver 80 in the printer part 8 drives a laser light emitting part 81, and the laser light corresponding to the image data outputted from the reader part 1 is emitted by the laser light emitting part 81. 25 This laser light is irradiated to a photosensitive drum 82 so as to form a latent image corresponding to the laser light on

the photosensitive drum 82. Developer is made to adhere to the part of the latent image on the photosensitive drum 82 by a developing device 83.

Recording paper is fed from either one of a cassette 84 and a cassette 85 at a timing synchronized with the start of irradiation of the laser light, and transported to a transfer part 86 so as to transfer the developer adhering to the photosensitive drum 82 onto recording paper. The recording paper carrying the developer is transported to a fixing part 87, and the developer is fixed onto the recording paper by heat and pressure of the fixing part 87. The recording paper passing through the fixing part 87 is discharged by discharge rollers 88, and a sorter 100 sorts the recording paper by storing the discharged recording paper on each bin. When sorting is not set in the sorter 100, recording paper are stored on the uppermost bin.

When both-sided recording is set, the rotational direction of the discharge rollers 88 is reversed after transporting recording paper to the discharge rollers 88, and the recording paper is led to a re-feeding transporting path by a flapper 89. When duplicate recording is set, recording paper is led to the re-feeding transporting path by the flapper 89 so that the recording paper is never transported to the discharge rollers 88. The recording paper led to the re-feeding transporting path is fed again to the transfer part 86 at the aforementioned timing.

Fig. 3 is a block diagram in the core part 2.

The core part 2 is connected to the reader part 7 via a digital video I/F 121, and is also connected to the hard disk 2, network interface part 4, operation part 5, formatter part 6, and IrDA communication part 9 via buses.

The image data read by the reader part 7 is transferred to a data processing part 124 via the digital video I/F 121, and at the same time, the control command from the reader part 7 is transferred to the CPU 122. The data processing part 124 performs image processing, such as image rotation process, variable magnification process. The image data transferred from the reader part 7 to the data processing part 124 is transferred to the hard disk 3 and the network interface part 4 via an I/F 120 in accordance with the control command which is transferred at the same time as the image data.

When a print request command is transmitted from the external client 11 via the network interface part 4, the CPU 122 transfers PDL data transmitted at the same time to the formatter part 6. Then, the PDL data is exploded to image data by the formatter part 6, finally transferred to the data processing part 124, and then transferred to the printer part 8 so as to be outputted for printing. During these processes, the CPU 122 checks the status of the formatter part 6 or the status of the printer part 8 at an appropriate time, so as to transmit the status about printing to the network interface part 4, IrDA communication part 9 or operation part 5 via the

I/F 120.

The CPU 122 performs such a control in accordance with the control program stored in a memory 123 and the control command transferred from the reader part 7. The memory 123 is 5 also used as the working area of the CPU 122.

As described above, the core part 2 is able to control the flow of data among the reader part 7, hard disk 3, network interface part 4 and formatter part 6, and perform the process combining the functions, such as reading of a document image, 10 printing of an image, input and output of data with respect to a computer.

Fig. 4 is an illustration describing the structure of the program in the network interface part 4.

IP (Internet Protocol) 201 in the figure is an internet 15 protocol layer which offers the service of transmitting a message from a transmitter host to a receiver host liaising with a relay node, such as a router. The most important information to transmit a message is the address of a transmitter and a receiver, which is administrated by the IP. 20 By which route a message is sent to the receiver host in the internet system in accordance with the address information, that is, routing is performed in the IP layer.

TCP (Transmission Control Protocol) and UDP (User 25 Datagram Protocol) 202 form a transport layer which offers the service of sending a message from transmission application process to receiving application process. TCP is a connection

type service which guarantees high grade reliability of communication, while UDP is a connectionless type service and thus never guarantees reliability.

Reference numeral 203 is the protocol of an application 5 layer, and includes TELNET of a remote log-in service, FTP of a file transfer service, SNMP of a network administration protocol, LPD of a server protocol for printing by a printer and HTTPd of the protocol of a WWW (World Wide Web) server.

In the application, a HTTP client 204 for obtaining data 10 of the WWW server and HTML.Parser 205 for converting the obtained data in the HTML form and image data to the data format for printing on paper are present.

In the present embodiment, the function that the digital copying apparatus 1 positively accesses to an external WWW 15 server so as to obtain the HTML data in the WWW server and print it by its printer, is called Web.Pull.Print. As the methods of requiring the Web.Pull.Print to the digital coping apparatus 1 by a user, the following two methods are present.

One is the method of using a special program (called "print 20 utility", hereinafter) which operates on the external client terminal 11 or PDA 10, and the other is the method of using the operation part 5 of the digital copying apparatus 1.

[Method of using print utility]

The Web.Pull.Print requiring method using the print 25 utility is described at first.

A user is able to perform various settings concerning

the Web.Pull.Print using this print utility, and transmit the contents of setting to the digital copying apparatus 1 using a packet described later. The digital copying apparatus 1 which received the packet analyzes the content of the packet, and

5 starts the Web.Pull.Print operation in accordance with the designation thereby.

The digital copying apparatus 1 also has the function of spooling a plurality of Web.Pull.Print requirements received from the print utility, in the form of job. The print utility

10 communicates with the digital copying apparatus 1 using the packet described later to obtain the information concerning the job spooled inside or delete a specific job.

Fig. 5 and Fig. 6 show lists of the items capable of being set by a user using the print utility. The content of

15 each item is as follows.

“Title of printed document” of (P1) in Fig. 5 is the document title to be printed in the header part of the printing result, and is able to be edited by a user. “URL” of (P2) designates the domain name of the WWW server in which a

20 home page to be printed is stored as well as the file name of the data in the HTML form to be obtained. “Printer address” of (P3) is the network address of the digital copying apparatus 1 for sending the Web.Pull.Print request. In “user name” of (P4), an optional user name is capable of being

25 inputted. The digital copying apparatus 1 specifies the transmitter of the Web.Pull.Print request from this user name.

“Optional file” of (P5) is a file in which all the contents set in this print utility is stored, and setting to all setting items is able to be performed collectively by making the optional file for each user in advance and 5 designating any file by this setting item. As to “Link level” of (P6), in the digital copying apparatus of this embodiment, if hyper link is set in the home page designated printing, the home page of the link destination is also able to be printed following the link. In this case, the number of the layer to 10 follow link is designated in this item.

“Maximum number of printing page” of (P7) is the maximum value of the number of the pages to be printed, in the case that the home page to be printed is over a plurality of pages.

“Print over maximum number of printing page” of (P8) 15 designates whether or not the home page is printed to the end, in the case that one home page to be printed is over a plurality of pages and one middle page thereof is the “maximum number of printing page”..

“Print of other site” of (P9), designates, in the case 20 that the designation of “link level” is 1 or more and the destination of the link is other site, whether or not the link destination is also printed. As to “Print of link map” of (P10), in the digital copying apparatus of the present embodiment, when a home page is printed following the link, a 25 link map showing the relation of the link is able to be formed and printed. It is designated whether or not this link map is

printed as the last page of the home page printing.

“Print of page number” of (P11) designates whether or not a page number is printed in the footer part of each printing result. “Print of date” of (P12) designates whether 5 or not the date of printing is printed in the footer part of each printing result. “Print of URL” of (P13) designates whether or not the URL is printed in the footer part of each printing result.

“Print of document title” of (P14) designates whether or 10 not the “document title” is printed in the header part of each printing result. “Content of printed header” of (P15) is an optional character row printed in the header part of the printing result. “Position of printed header” of (P16) is the position in which the character row designated by the “content 15 of printed header” is printed.

“Print of background” of (P17) designates, in the case that an image for portraying the background is designated in the home page, whether or not the image is printed. This is for preventing that, if the background color of the home page 20 is set in black or the like, both the text part and the background part become black when printed by a monochrome printer and thus the text cannot be discriminated, even with no problem on a color display.

“Numbering of <H> tag” of (P18) designates whether or 25 not a headline number is applied to the head of the headline sentence in the home page. “Print link document first” of

(P19) designates, when two or more link levels are designated, whether printing is performed in the order of the read out links or the identical link levels are printed at first.

"Magnification rate/reduction rate" of (P20) is the

5 magnification rate or reduction rate in printing the home page with magnification or reduction.

As to "Reduction rate in the case of page boundary" of (P21) shown in Fig. 6, in the digital copying apparatus of the present embodiment, when the image on the home page covers the 10 page boundary, the image is able be printed with reduction so as to be within a page. In this case, the reduction rate is designated.

"Font name" of (P22) is the font used in printing the HTML text data. "Font size" of (P23) is the font size used in 15 printing the headline character row in the home page.

"Thickness of font" of (P24) is the thickness of the font used in printing the headline character row in the home page. "Use of style sheet" of (P25) designates whether or not the file designated in "Name of style sheet" is used. The "Name of 20 style sheet" of (P26) is the name of the file storing the content of setting of the "Font name", "Font size" and "Thickness of font" (style sheet), and if this is present in advance, the file name is designated. As a result, a user is able to perform these setting concerning the font without 25 setting individual item.

"Printing paper size" of (P27) is the size of paper used

in printing. "Orientation of printing paper" designates either Portrait or Landscape as the orientation of paper in printing. "Left/right/upper/lower margin" of (P29) is the margin from the end of the paper in printing. "Number of 5 printing" of (P30) enables a plurality of prints by setting this item.

"Sorter" of (P31) designates the operation mode of a sorter connected to the digital copying apparatus of the present embodiment. The operation mode includes normal sort, 10 staple sort and group sort, and if the normal sort is selected, a plurality copies of printed matter are discharged with being sorted for each copy for each bin of the sorter (100 in Fig. 2). If the staple sort is selected, each of the sorted printed matters are stapled. If the group sort is selected, a 15 plurality copies of documents are discharged in such a way wherein the printed matters of the identical page are discharged on an identical bin.

"Resolution" of (P32) is the printing resolution, and "Both-sided print" of (P33) designates whether or not both-sided print is performed. As to "Setting of schedule print" 20 of (P34), in the digital copying apparatus of the present embodiment, the Web.Pull.Print operation is able to be started on the designated time or the Web.Pull.Print requirement by a user is able to be repeated periodically, and these functions 25 are called schedule. Concretely, immediately performing mode, time designation mode and periodical circuit mode (designation

of the day of the week/ designation of the date / designation of the interval) are included, and in the present item, any one of the modes is designated among them.

“Designation of the day of the week” of (P35) designates 5 the day of the week for performing the operation, when the periodical circuit mode (designation of the day of the week) is designated in “Setting of schedule printing”. “Designation of the date” of (P36) designates the date of starting performance, when the time designation mode or periodical 10 circuit mode (designation of date/interval) is designated in the “Setting of schedule printing”. “Designation of the time” of (P37) designates the time of starting performance, when the time designation mode or periodical circuit mode is designated in the “Setting of schedule printing”.

15 “Designation of the interval” of (P38) designates the interval of performing time with date and time, when the periodical circuit mode (designation of interval). “Print of only updated document” of (P39) designates whether or not only the home page updated after the last printing is printed in 20 performing the periodical circuit mode.

Fig. 7 to Fig. 13 are illustrations showing the operation screen of the print utility.

When the print utility is started on the client terminal 11 or PDA 10, the operation screen in Fig. 7 is displayed at 25 first. In the case of setting the aforementioned setting items (P6) to (P39), the operation screen in Fig. 8 is newly

displayed by pressing the button 210.

Further, by pressing the tag in the upper part of this operation screen, the screen is able to move to the operation screens shown in Fig. 9 to Fig. 11. By pressing a "OK" button 5 220, 230, 240 or 250 or "Cancel" button 221, 231, 241 or 251 on the operation screens shown in Fig. 8 to Fig. 11, the screen is able to return to the operation screen in Fig. 7.

By pressing the "Bookmark" button 211 in the right upper part of the operation screen in Fig. 7, the bookmark screen in 10 Fig. 12 is newly displayed. The bookmark is the list including the URL of the home page and the title thereof. If a bookmark which has already been entered is present, the content of the list is displayed on this screen. If a URL is designated from the list, the objected URL is selected to 15 reverse display, and the "OK" button 260 is depressed in this state, thereby the selected title and URL are reflected in 212 and 213 on the operation screen in Fig. 7. In the case of newly adding a title and URL, the title and URL are inputted in 212 and 213 on the operation screen in Fig. 7, and then 20 those are added to the aforementioned list by pressing an "Add Bookmark" button 214.

The setting method on the operation screen in Fig. 11 is described in detail.

When the schedule is set, a user checks an "Enable 25 Schedule" check box P34 at first. This check box is not checked in an initial setting, and in this state, setting of

the schedule cannot be performed. If the check box P34 is checked, setting of each item of P34 to P39 is able to be performed.

Then, the user selects any one of the modes of "Once",
5 "Weekly", "Monthly" and "Repeat" of P34. When the "Once" mode is selected, only the setting items of P36 and P37 are selectable, and the user inputs the time of starting performing the Web.Pull.Print (time/minute/month/date/year). By this designation, the digital copying apparatus 1 performs the
10 Web.Pull.Print repeatedly on the designated time of the designated date of the week every week.

If the "Monthly" mode is selected, "Day" of P36 and setting item of P37 are able to be set, and the user inputs the date and starting time (time/minute) of performing the
15 Web.Pull.Print. By this designation, the digital copying apparatus 1 performs the Web.Pull.Print repeatedly on the designated date and time every month.

If the "Repeat" mode is selected, setting items of P36, P37 and P38 are able to be set, and the user inputs the date
20 and time (time/minute) of starting performing the Web.Pull.Print as well as the performing interval (date/time) thereof. By this designation, the digital copying apparatus 1 performs the Web.Pull.Print repeatedly from the designated date at the designated performing interval. When the "Weekly",
25 "Monthly" or "Repeat" mode is selected, a "Modified Only" check box P39 becomes the state of capable of being checked.

The user is able to open each operation screen in Fig. 7 to Fig. 11 by the aforementioned method, and perform setting of necessary items. By pressing a "Print" button 215 on the operation screen in Fig. 7 after completing all the setting, 5 the print utility transmits the content of setting to the digital copying apparatus 1.

If a "Monitor" button 216 is pressed on the operation screen in Fig. 7, the operation screen in Fig. 13 is displayed. In this case, the print utility communicates with the digital 10 copying apparatus 1, and obtains the information concerning the job spooled in the digital copying apparatus 1 to display on the operation screen. The user is able to grasp the process of the spooled job by referring the content of the display.

15 The user is also able to delete the spooled job. In this case, the user selects the job to be deleted among the job information displayed on the operation screen to reverse display, and depresses a "Delete" button 270. Then, the print utility transmits the delete requirement including the job 20 number of the designated job to the digital copying apparatus 1, and the digital copying apparatus 1 which received this delete requirement deletes the job having the identical job number among the spooled jobs.

Fig. 14 is a flowchart in the case of printing the home 25 page of a WWW server using the program, such as HTTP client 204 or HTML parser 205. In this case, only the part

concerning the Web.Pull.Print requiring method using the print utility is described.

The print utility on the client terminal 11 communicates with the digital copying apparatus 1 using LPR protocol which 5 is an upper protocol of TCP/IP. In the network interface part 4 of the digital copying apparatus 1, LPD (Line Printer Deamon) is operated, and the LPD receives the Web.Pull.Print request, job information request and job delete request as LPR command, LPQ command and LPRM command, respectively (steps 10 S301 and S302).

The print utility on the PDA 10 communicates with the digital copying apparatus 1 using IrDA protocol. In the IrDA communication part 9 of the digital copying apparatus 1, as shown in Fig. 15, a driver layer 402 formed of a driver for 15 driving a driving device, an IrDA layer 403 formed of IrLAP (IrDA Link Access Protocol) or IrTP (IrDA Transport Protocol) and an application layer 404 on which a processing module for easily handling in the core part 2 runs are operated on a physical layer 401 formed of an infrared receiving element and 20 the aforesaid driving device. An IrDA protocol stack formed of these layers receives the Web.Pull.Print request, job information request and job deletion request, and transmits the designation to the core part 2 (steps S303 and S304).

In this case, each parameter set by the print utility is 25 stored as character row data in the data file included in the command packet, and transmitted to the LPD or IrDA protocol

stack.

Fig. 16 shows an example of this data file.

The numbers on the right side of the same figure correspond to the serial number of the explanation of the 5 content of the setting items of the aforementioned print utility, and are not described in the actual data file.

As obvious from the same figure, the character row data starts with "START_OF_NETRETRIEVER_PARAMETERS", and ends with "END_OF_NETRETRIEVER_PARAMETERS". Each parameter is described 10 in the form of "parameter name = value". However, only the "Title of printing document" and "User name" among the parameters set by the print utility are stored in the control file in the command packet.

Fig. 17 shows an example of this control file.

15 Since the data flowing on the network as the command packet is only the setting parameter necessary for printing, the amount of data thereof is able to be remarkably few comparing with the case of flowing the data which is obtained 20 by converting the home page data to the format capable of printing on the network, as the conventional example.

In the core part 2, a command receiving process for receiving the request command from the LPD or IrDA protocol stack is continuously operated, and LPR command from the print utility (Web.Pull.Print request), LPQ command (job information 25 request) and LPRM (job deletion request command) are converted to the format shown in Fig. 18 (a), (b) and (c) and

transmitted to the command receiving process.

Identifiers 411, 412 and 413 showing the kind of the command (LPR/LPQ/LPRM) are added on the head of this format.

The command receiving process discriminates the kind of the

5 command referring to the identifier, and analyzes the content of the command matching with the respective format (step S321).

The request command is generated also by a schedule job process described later (step S305).

The Web.Pull.Print requiring method using the print 10 utility is as described above.

The Web.Pull.Print requiring method using the operation part 5 of the digital copying apparatus 1 is described below.

[Web.Pull.Print requiring method using the operation part 5]

Fig. 19 and Fig. 20 are illustrations showing the 15 display of the copy mode of the operation part 5.

A display screen 500 in Fig. 19 is a window displaying the present status, and shows that the present status is capable of copying, paper size of A4, magnification rate of 100% and printing of one copy. A guide key 501 displays an 20 appropriate advice when how to operate is unknown. Reference numerals 502 to 504 are mode change keys, and if the copy key 502 or Web key 504 is depressed, the present mode is changed to the copy mode or Web print mode, respectively. Reference numeral 505 is the key for displaying the mode key which 25 cannot be displayed at present, and if this button is depressed, printer mode keys are displayed.

If a paper selection key 506 is depressed, the display as shown in Fig. 20(a) is displayed, and the size of the paper accommodated in the cassettes 84 and 85 is able to be selected.

A processing menu for performing setting concerning the image

5 processing is displayed on 507 so as to set trimming, masking, negative/positive reverse, shade processing and the like.

Reference numeral 508 is a menu for performing setting of processing concerning the both-sided printing, and three kinds of setting of a one-sided document to a one-sided document, a 10 one-sided document to a both-sided document, and a both-sided document to a both-sided document.

An application zoom 509 is a key for displaying the menu screen for setting so as to change the magnification rate in the horizontal and vertical directions. If a sorter key 510

15 is depressed, the menu concerning the sorter 100 as shown in

Fig. 20 (b) is displayed. If "sort" is selected, a plurality copies of printed matter are discharged onto each bin of the sorter 100 with being sorted for each copy. If "staple sort" is selected, setting for stapling the sorted printed matters 20 is performed. If "group sort" is selected, setting is performed for discharging a plurality copies of printed matters so that the printed matters of an identical page are discharged onto an identical bin.

A document mixed placement button 511 is the button for

25 setting whether different size documents are placed mixedly or only the documents of an identical size are placed. If the

document mixed placement is designated, the size of the document is checked every scanning, and if the document mixed placement is not designated, only the size of the first page of the document is checked. An equal magnification button 514 5 is the key for returning the setting of the magnification rate to 100%. A reduction 515 and enlargement 516 are buttons for displaying the menus for setting the reduction rate and magnification rate, respectively.

Ten keys 518 are buttons for setting the number of 10 printing in this screen. By depressing a reset key 520, the parameter necessary for copying is returned to a default value. If a start key 519 is depressed after the parameter necessary for copying has been set, copy operation is started. By depressing a STOP key 521 or reset key 520 after starting 15 copying, the copy operation is interrupted.

Fig. 21 to Fig. 26 are illustrations showing the screen of the Web.Pull.Print mode which is displayed by depressing the Web.Pull.Print mode button 504.

The window 500 in Fig. 21 displays that the present mode 20 is the Web.Pull.Print mode and in the state of the paper size of A4, the magnification rate of 100% and one copy of printing. On the URL button 531, the domain name of the WWW server to be accessed and the file name of the data in the HTML form to be obtained are displayed. By depressing this button, an 25 unillustrated alphabet keyboard is displayed to enable to input a character row.

A printing time button 532 is the button for opening the window for setting the date, time and the like to start the Web.Pull.Print (Fig. 22). Since the content of the parameter set on this window is the same as that in Fig. 11, the 5 detailed description thereof is omitted.

If the "BOOK MARK" key 534 is depressed, the BOOK MARK window in Fig. 23 is displayed. If a time designation list button 535 is depressed, the time designation list window in Fig. 24 is displayed. If a waiting job list key 536 is 10 depressed, the waiting job list window in Fig. 21 is displayed.

If a log button 537 is depressed, the log list window in Fig. 26 is displayed. A detailed setting button 538 is the key for displaying the menu window for setting the detailed parameter concerning the Web.Pull.Print.

15 The parameters set in this window are all in the lists of Fig. 5 and Fig. 6 except the size of print paper, both-sided copy, sorter, URL, set of schedule printing, designation of the day of the week, designation of the date, designation of the time and designation of the interval.

20 On the BOOK MARK window in Fig. 23, a URL list 550 to 554 which has already been registered is displayed. The URL list is scrawled upward by depressing an upward arrow key 556, and is scrawled downward by depressing a downward arrow key 557. By depressing a registration key 555, the URL displayed 25 on the URL button 531 in Fig. 21 is additionally registered to this list.

By depressing an OK button 559 after selecting and reverse displaying any one of the URLs 550 to 554, the selected URL is set on the URL button 531. By depressing a delete button 558 after reverse displaying in the same way, 5 the selected URL is deleted from the URL list.

On the time designation list window in Fig. 24, the list of the job which is performed printing time designation on the printing time designation window (Fig. 22) is displayed. The content of the display includes URL 566, printing date 567 and 10 printing time 568. The job on this list is able to be deleted from the list by the same operation method as shown in Fig. 23.

On the waiting job list window in Fig. 25, the list of the jobs, which are waiting for their execution because of during execution of other job by the HTTP client process (step 15 S322 in Fig. 14) and HTML parser process (step S324) which are described later, is displayed. The job on this list is able to be deleted from the list by the same operation method as shown in Fig. 23.

In the log list window in Fig. 26, the result of 20 execution of job is displayed.

The result is displayed in the order from the one having newer execution time, and if the maximum display number is exceeded, older one is automatically deleted from the list. The content of display includes URL 593, date 594, time 595 25 and display of result 596. The URL 593 is the URL of the accessed WWW server, and the date 594 and time 595 are the

date and time of accessing the WWW server, respectively. To the result 596 of the jobs 588, 591 and 592 in which access to the WWW server and printing are performed normally, "normal completion" is described. To the result 596 of the job 589 in 5 which a user interrupts printing by a reset key, "completion of reset" is described. To the result 596 of the job 432 which could not be normally printed due to the state of the network or WWW server, "error completion" is described.

By finally depressing the start button 519 in Fig. 21 10 after setting necessary parameters on the aforementioned each setting window concerning the Web.Pull.Print, the Web.Pull.Print request command is generated from the operation part 5 to the command receiving process.

The method of requesting the Web.Pull.Print using the 15 operation part 5 is as described above.

Since the print designation command from the operation part 5 and the print designation command from the schedule job process are in the same data format as the print designation command from the client 11 or PDA 10 (refer to Fig. 18), the 20 command receiving process (step S311) is able to deal with the print request designation commands from these three unitedly.

Not only the print designation command but also job inquiry command, schedule job deletion command and immediately job deletion command are generated from the client terminal 11, 25 PDA 10 and operation part 5.

Fig. 27 is a flowchart of the command receiving process

(step S321).

If the core part 2 has received the command, it is designated firstly whether or not the command is the job inquiry command (step S600). If it is the job inquire command, 5 a job list is obtained (step S601). Then, the obtained job list is transmitted to the address which transmitted the command as a message (step S604). In this case, if the command transmitter is the print utility, the received data is displayed on the operation screen of the print utility (Fig. 10 13).

If the received command is not the job inquiry command, it is discriminated whether or not the command is the schedule job deletion command (step S602). If it is the schedule job deletion command, the job information corresponding to the 15 designated job number is deleted from the schedule list (step S603), and the schedule list performed the deletion is transmitted to the address which transmitted the command as a message (step S604).

If the received command is not the schedule job deletion command, it is discriminated whether or not the command is the immediate job deletion command (step S605). If it is the immediate job deletion command, the discrimination is performed whether or not the designated job is being performed in the HTTP client or HTML parser (step S606). If it is not 25 being performed, the job information corresponding to the designated job number is immediately deleted from the job list

(step S607). Then, the job list performed the deletion is transmitted to the address which transmitted the command as a message (step S604).

If the job to be deleted is being performed in the HTTP 5 client or HTML parser, a cancel flag is put to complete the process (step S609). If the received command is not the immediate job deletion command, it is discriminated whether or not the command is the immediate job print command (step S608). If it is not the immediate job print command, it is the print 10 command of the schedule job, and thus this job is registered in the schedule job list (step S610) to complete the process. If it is the immediate job print command, the process moves to the HTTP client in step S322.

The HTTP client and HTML parser never process a 15 plurality of jobs in parallel at a time, and if another job process is being operated, the present job is immediately registered in the job list so as to be performed as soon as the process is finished.

The schedule job registration process (step S610) is 20 described further in detail.

The core part 2 detects the schedule print mode in the received print command at first, and determines the actual date and time of starting the Web.Pull.Print matching with each mode. In the case of "Once mode", the date and time 25 designated in the command is used as the actual date and time of starting the Web.Pull.Print. In the case of "Weekly mode",

the actual date and time of starting the Web.Pull.Print is the date corresponding to the nearest designated day of the week on and after the date and time on the point of the registration, and the designated time.

5 For example, the date and time on the point of the registration is 15:00 on 1 (Saturday) and the designated day of the week and time is 12:00 on Saturday, Monday and Thursday, the actual date and time of starting the Web.Pull.Print is 12:00 on 3 (Monday).

10 In the case of "Monthly" mode, the actual date and time of starting the Web.Pull.Print is the nearest designated date and time on and after the date and time on the point of the registration. For example, if the date and time on the point of the registration is 15:00 on November 1 and the designated date and time is 12:00 on 1, the actual date and time of starting the Web.Pull.Print is 12:00 on December 1.

15 In the case of "Repeate" mode, the actual date and time of starting the Web.Pull.Print is the nearest date and time on and after the date and time on the point of the registration among a plurality of starting timings calculated with the designated starting date and time and designated interval. For example, if the date and time on the point of the registration is 15:00 on November 1, the designated starting date and time is 12:00 on November 1, and if the designated interval is three days and 12 hours, the actual date and time of starting the Web.Pull.Print is 0:00 on November 5.

After the actual date and time of starting the Web.Pull.Print is decided matching with each mode as described above, it is registered to the schedule job list with being sorted in the order of earlier starting date and time.

5 The HTTP client (step S322 in Fig. 14) operates so as to obtain the data of the home page, such as the HTML data or image data, from the WWW server. After the completion of the operation of the HTTP client (step S322), it is checked whether or not a cancel flag is put in step S323 in Fig. 14.

10 If the cancel flag is put, the print discontinuing process is executed (step S327) so as to transmit the message of cancellation of printing is transmitted to the generator of the discontinued job (step S328) and complete the process.

15 If the cancel flag is not put, the process moves to the HTML parser (step S324). The HTML parser is the program for forming an image so as to enable to perform printing in the printer part 8 based on the data obtained from the WWW server. After finishing the HTML parser, it is discriminated whether or not the cancel flag is put in step S325. If the cancel 20 flag is put, the print discontenting process is performed (step S327), and the message showing the cancellation of printing is transmitted to the generator of the job via the network interface part 4 or IrDA communication part 9 to finish the process.

25 If the cancel flag is not put, the image formed by the HTML parser is transmitted to the core part 2 (step S326).

The core part 2 which received the image transfers the image to the printer part 8, performs printing on the paper stored in the cassette 84 or cassette 85, and transmits the message showing the completion of printing via the network interface 5 part 4 or IrDA communication part 9 (step S328), to finish the execution of the Web.Pull.Print.

Fig. 28 is a flowchart showing the sequence of the schedule job process.

This schedule job process is started periodically once 10 every minute. It is checked whether or not the schedule job is present in the schedule job list in step S621. If it is present, it is checked whether or not the present date and time has reached the designated starting date and time of the job on the head of the list (step S622). If it has reached, 15 the schedule printing mode of the job is changed to the immediate mode, and the print designation command is transmitted (step S623) to the command receiving process (step S321). If it has not reached, the process is directly finished.

20 The command transmitted to the command receiving process (step S321) is processed as the immediate job and sent to the HTTP client process (step S322) to perform the same process as described above.

After transmitting the print designation command, the 25 core part 2 decides the starting date and time of the Web.Pull.Print following the job designated printing, and the

job is registered to the schedule job list (step S624). Then, it is checked whether or not the present date and time has reached the designated starting date and time of the head job of the list (step S621). By repeating the process from step 5 S622 to step S624, all the schedule jobs which have reached the performing time are performed without fail.

Though the present embodiment has been described using TCP/IP as the communication protocol of the network, the same effect is able to be obtained by using such a communication 10 protocol as IPX, SPX or Apple Talk. Though the present embodiment has been described using LPR/LPD as the communication protocol between the client terminal 11 and the digital copying apparatus 1, the same effect is able to be obtained by using the communication protocol, such as HTTP or 15 FTP.

As described above, in the present embodiment, a user of the PDA 10 transmits only the information of the connection destination, such as the URL of a WWW server, to the copying apparatus 1 via the IrDA communication part 9, and necessary 20 information is obtained from the WWW server by the copying apparatus 1 to be printed. Accordingly, even if the display part or memory of the PDA 10 is not enough as the accessing equipment of the WWW server, access to the WWW server becomes practical. Further, since the status information concerning 25 printing is able to be returned to the PDA 10 by the IrDA communication part 9, the information whether or not printing

has been completed normally is able to be obtained.

By storing the program following the flowcharts in Fig. 14, Fig. 27 and Fig. 28 in the hard disk 3 to operate, the aforementioned control method is able to be performed.

5 The present invention is not limited to the apparatus of the aforementioned embodiment, and may be applied to a system composed of a plurality of equipment or an apparatus composed of one equipment. It goes without saying that a storing medium storing the program code of the software executing the 10 function of the aforementioned embodiment may be supplied to the system or apparatus so as to complete the system or apparatus by reading out and executing the program code stored in the storing medium by a computer (or CPU or MPU). In this case, the program code itself read out of the storing medium 15 executes the function of the aforementioned embodiment, and the storing medium storing the program code constitutes the present invention. As the storing medium for supplying the program code, for example, a floppy disk, hard disk, optical disk, optical magnetic disk, CD-ROM, CD-R, magnetic tape, 20 nonvolatile memory card or ROM is usable.

By executing the program code read out by the computer, not only the function of the aforementioned embodiment is performed, but also an OS or the like operating on the computer performs a part of or all of the actual process in 25 accordance with the designation of the program code, so as to perform the function of the aforementioned embodiment by this

process. It goes without saying that the case is also included that the program code read out of the storing medium is written in the memory which is provided on the function extension board inserted to the computer or the function 5 extension unit connected to the computer, and the CPU or the like provided on the extension board or extension unit performs the extension function based on the designation of the following program code so as to perform a part of or all of the actual process, and the function of the aforementioned 10 embodiment is performed by this process.

[Effects of the Invention]

As described in detail, in the image forming apparatus relating to the invention described in claim 1, claim 3 and 15 claim 4, the image forming method relating to the invention described in claim 5, claim 6 and claim 7 and the image forming system relating to the invention described in claim 8, the user of the connection destination designating device transmits only the information of the connection destination 20 of, for example, the information storing device as a WWW server to the image forming apparatus via the wireless communication means, and is able to obtain necessary information from the information storing device on the network by this image forming apparatus to print out. Accordingly, 25 even if the display part or memory of the connection destination designating device is insufficient as the access

equipment of the information storing device on the network, access to the information storing device is able to be performed practically.

In the image forming apparatus relating to the invention 5 described in claim 2, the image forming method relating to the invention described in claim 5 and the image forming system relating to the invention described in claim 9, the status information concerning printing is able to be returned to the connection destination designating device by the wireless 10 communication means. Accordingly, in addition to the aforementioned effect, the information whether or not the printing has been completed normally is also able to be obtained.

In the computer readable storing medium relating to the 15 invention described in claim 10, even if the display part or memory of the connection destination designating device is insufficient as the access equipment of the information storing device on the network, access to the information storing device is able to be performed practically by reading 20 and performing the program.

In the computer readable storing medium relating to the invention described in claim 11, the information whether or not the printing has been completed normally is also able to be obtained by reading and performing the program.

15

ていなければ最初のページのみ原稿サイズのチェックを行いうるに設定される。字体がボタン5 1 4は、拡大率を100%に設定するキーであり、縮小5 1 5及び拡大5 1 6は拡大率、縮小率をセットするメニューが表示されるボタンである。

[0092] テンキー5 1 8は、この画面では印刷削除をセントするボタンである。リセットキー5 2 0を押すことによりコピーに必要なパラメータはデフォルト値に戻される。これらコピーする前に必要なパラメータをセントした後にスタートキー5 1 9を押すとコピー動作が開始される。コピー開始後 STOPキー5 2 1、リセットキー5 2 0を押すことによりコピーは中断する。

[0093] 図21～図26は、Web・Pull・Printモードボタン5 0 4を押すことにより表示されるWeb・Pull・Printモード画面を示す図である。

[0094] 図21のウインドウ5 0 0には、現在Web・Pull・Printのプリントモードであることとが表示されており、A 4用紙サイズ、並大紙100%及び1面印刷の状態であることを表示している。URLボタン5 3 1上には、アクセスするWWWサーバのドメイン名、取得するHTML形式のデータのファイル名を表示している。このボタンを押すことにより図示しないアルファベットキーがドットが表示され、文字列を入力することが可能となる。

[0095] 印刷時刻ボタン5 3 2は、Web・Pull・Printを開始する日付、時間等を設定するウインドウであるためのボタンである。このウインドウ内で設定するパラメータの内容は図1 1のそれと同様であるため、詳しい説明は割愛する。

[0096] MARKボタン5 3 4を押下すると図2 3のBOOK MARKウインドウが表示される。時刻指定リストボタン5 3 5を押下すると図2 4の時刻指定リストウインドウには、後述するHTTPクライアント処理処理(図2 2)にて印刷時刻指定がなされたジョブのリスト表示される。表示内容はURL 5 6、印刷日5 6 7、及び印刷時刻5 6 8である。このリスト上のジョブは、図2 3と同様の操作方法でリストから削除できる。

[0097] このウインドウ内で設定されるパラメータは、図5及び図6のリストから印刷用紙サイズ、両面印刷、ソーター、URL、スケジュール印刷設定、曜日指定、日付指定、時刻指定、及び閲覧指定を含めた全てのものである。

[0098] 図2 3のBOOK MARKウインドウに

により、図2 1のURLボタン5 3 1で表示されているURLがこのリストに追加可能である。

[0099] また、URL 5 0から5 5 4の範囲を押下することで、選択して反映表示させた後にOKボタン5 5 9を押下することで、選択したURLがURLボタン5 3 1上にセットされる。同じく反映表示させた後に削除ボタン5 5 8を押すことで、選択したURLがURLリストから削除される。

[0100] 図2 4の時刻指定リストウインドウには、印刷時刻指定ウインドウ(図2 2)にて印刷時刻指定がなされたジョブのリスト表示される。表示内容はURL 5 6、印刷日5 6 7、及び印刷時刻5 6 8である。このリスト上のジョブは、図2 3と同様の操作方法でリストから削除できる。

[0101] 図2 5の待機ジョブリストウインドウには、後述するHTTPクライアント処理(図2 2)にて印刷時刻指定(ステップS 3 2)やHTMLバーサ处理器(ステップS 3 4)が既に他のジョブを実行中であるために、実行を待されているジョブのリストが表示されている。このリスト上のジョブは、図2 3と同様の操作方法でリストから削除できる。

[0102] 図2 6のログリストウインドウには、各ジョブの実行結果が表示されている。

[0103] 実行時刻の新しいものから既に表示され、表示最大数を過ぎた場合は古いものから自動的にリストから削除される。表示内容はURL 5 9、日付5 9 4、印刷5 9 5、結果表示5 9 6である。URL 5 9 3はアクセスしたWWWサーバのURLであり、日付5 9 4及び時刻5 9 5はWWWサーバ上にアクセスした日付、時刻である。WWWサーバへのアクセス、及び印刷が正常に行われたジョブ5 8 8、5 9 1、5 9 2の結果が5 9 6には「正常終了」が記述され、ユーザーがセットキーにより印刷を中断したジョブ5 8 9の結果が5 9 6には「リセット終了」と記述され、ネットワークやWWWサーバの大体同時ににより正常に印刷できなかったジョブ4 3 2の結果5 9 6には「エラー終了」が記述される。

[0104] 上述したWeb・Pull・Printに於ける各設定ウインドウにて必要なパラメータを設定した後、最終的に図2 1のスタートボタン5 1 9を押下することで、操作部5 5からコマンドが発行される。

[0105] 4の時刻指定リストウインドウが表示される。時刻指定リストボタン5 3 8は、Web・Pull・Printに於ける詳細なパラメータをセットするためのメニューである。

[0106] 5及び図6のリストから印刷用紙サイズ、両面印刷、ソーター、URL、スケジュール印刷設定、曜日指定、日付指定、時刻指定、及び閲覧指定を含めた全てのものである。

[0107] 6のBOOK MARKウインドウに

所からのプリント要求指示命令が統一的に扱うことができる。

[0108] 7は、スクジュールジョブ登録処理(ステップS 6 1 0)について更に詳細に説明する。

[0109] ヨブ番号2は、先ず受け取ったプリントコマンド内のスケジュール用モードを検知し、各モードに合わせて実際のWeb・Pull・Print開始日時を決定する。Onceモードであった場合は、実際の開始日付/時刻を決定された日付/時刻を使用する。Web・Pull・Print開始日時はコマンド内で

10 Web・Pull・Print開始日時はコマンド内で設定された日付/時刻を使用する。Web・Pull・Print開始日時は3日(月曜日)12:00となる。

11 Web・Pull・Print開始日時は、実際のWeb・Pull・Print開始日付は、翌日付の日付/時刻で最も近い指定曜日に設定する。

[0110] 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で指定曜日は指定曜日日付と設定曜日とする。

[0111] 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で指定曜日日付と設定曜日とする。

[0112] 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

[0113] 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

[0114] 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

[0115] 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

12 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

13 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

14 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

15 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

16 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

17 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

18 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

19 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

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21 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

22 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

23 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

24 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

25 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

26 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

27 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

28 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

29 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

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31 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

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33 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

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91 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

92 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

93 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

94 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

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100 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

101 例えは、翌日付の日付/時刻が1日15:00である場合は、翌日付の日付/時刻が1日15:00で設定曜日は最も近い指定曜日とする。

19. HTMLバーサは、WWWサーバーから取得したデータに基づいたプリント部8にて印刷が行なうように画像を作成するプログラムである。HTMLバーサは、ステップS 3.2.5にてキャセルラグが立っているか確認する。もしキャセルラグが立っていた場合には印刷中止処理を実行し(ステップS 3.2.7)、ネットワークインターフェース部4またはIrDA通信部9を介して印刷に対するレスポンスとして表示部やメモリが不十分である、WWWサーバーへのアクセスが実用的となる。さらに、印刷に関するステータス情報をIrDA通信部9によってPDA10に送信するようにしたので、正常にプリントが完了したかどうかの情報を得ることができる。

HTMLバーサにて作成した画像をコア部2へ送信する(ステップS 3.2.6)。画像を受け取ったコア部2はプリント部8へ画像を貼りし、カセット8.4あるいは8.5に収納されることにより、上述の印刷方法を実現させることができとなる。

【0130】本発明は、上述した実施形態の装置に限定されず、複数の機器から構成されるシステムに適用してもよい。前述も、ひとつの機器から成る装置に適用してもよい。前述したを実施形態の機器を実現するソフトウェアのプログラムコードを記述した記憶媒体も、システムあるいは装置に供給し、そのシステムあるいは装置もコンピュータ(またはCPUやMPU)が記憶媒体に格納されたプログラムコードを読み出し実行することによって、完成されるることは言うまでもない。この場合、記憶媒体から読み出されたプログラムコード自身が前述した実施形態的に実現することになり、そのプログラムコードを記憶媒体に格納されたプログラムコードが完了したかどうかの前段も得ることができる。

【0131】また、コンピュータが読み出したプログラムコードを実行することにより、前述した実施形態の機能が実現されるだけではなく、そのプログラムコードの指示に基づき、コンピュータ上で稼動しているOSなどが実際の処理の一部または全部を行い、その処理によつて前述した実施形態の機能が実現される場合も含まれることは言うまでもない。さらに、記憶媒体から読み出されたプログラムコードが、コンピュータに挿入された複数個ボードやコンピュータに接続された複数部品によって構成されるメモリに書き込まれた後、次のプログラムコードを指示に基づき、その並び順能を並列ボードや機能を並列ユニットに書きわるCPUなどが実際の処理を行つて実際の処理の一部または全部を行い、その処理によって前述した実施形態の機能が実現される場合も含まれることは言うまでもない。

【0132】なお、本実施形態では、ネットワークの通信プロトコルにTCP/IPを用いて説明したが、IPX、SPPX及びAPP10～14等の通信プロトコルを用いても同様の効果が得られる。また、クライアントサーバー間の通信プロトコルを用いても同様の効果が得られる。

【0133】このように、ステップS 6.2.4の処理をスケジュールジョブの次のWeb.Pull. Print開始日時を決定し、再度ジョブをスケジュールジョブへ登録する(ステップS 6.2.4)。そして再び現在の日付/時間がリストの先頭ジョブの指定開始日付/時間に達しているか否かをチェックする(ステップS 3.2.5)。コマンド受け取り処理(ステップS 3.2.1)にて取得されたコマンドは、即時ジョブとして処理され、それ以降は前述と同様の処理が行なわれる。

【0134】プリント指示コマンドの表示部コア部2はプリント指示されたジョブの次のWeb.Pull. Print. Print開始日時を決定し、再度ジョブをスケジュールジョブへ登録する(ステップS 3.2.5)。このように、ステップS 6.2.4からステップS 6.2.4の処理を繰り返すことで、実行順列に達した全てのスケジュールジョブを確実に実行する。

【0135】なお、本実施形態では、ネットワークの通信プロトコルにTCP/IPを用いて説明したが、IPX、SPPX及びAPP10～14等の通信プロトコルを用いても同様の効果が得られる。また、クライアントサーバー間の通信プロトコルを用いても同様の効果が得られる。

【0136】以上詳述したように、請求項1、請求項3及び請求項4記載の実施形態に係る画像形成装置と、請求

【0137】このように本実施形態では、PDA10のユーティリティは、WWWサーバーへのURL等の接続先情報を元を基にプリント部8にて印刷が行なうように画像形成システムと成する。WWWサーバーへのURL等の接続先情報を元をIrDA通信部9を介して複数機1に送り、その複数機1によつてWWWサーバーへより必要な情報を取得してプリントすることができる。PDA10がWWWサーバーへのアクセス権として表示部やメモリが不十分である、WWWサーバーへのアクセスが実用的となる。

【0138】プリント部8にてキャセルラグが立っているか確認する。もしキャセルラグが立っていた場合には印刷中止処理を実行し(ステップS 3.2.7)、ネットワークインターフェース部4またはIrDA通信部9を介して印刷に対するレスポンスとして表示部やメモリが不十分である、WWWサーバーへのアクセスが実用的となる。

【0139】なお、図14、図2.7及び図2.8のフローチャートにて示されたプロトコル3に格納し、データベース部4あるいは8.5に収納することにより、上述の印刷方法を実現させることができとなる。

【0140】本発明は、上述した実施形態の装置に限定されず、複数の機器から構成されるシステムに適用してもよい。前述も、ひとつの機器から成る装置に適用してもよい。前述したを実施形態の機器を実現するソフトウェアのプログラムコードを記述した記憶媒体も、システムあるいは装置に供給し、そのシステムあるいは装置もコンピュータ(またはCPUやMPU)が記憶媒体に格納されたプログラムコードを読み出し実行することによって、完成されるることは言うまでもない。この場合、記憶媒体から読み出されたプログラムコード自身が前述した実施形態的に実現することになり、そのプログラムコードを記憶媒体に格納されたプログラムコードが完了したことになる。プログラムコードを読み出すことは本発明を構成することになる。例えば、フローディスク、ハードディスク、CD-R、磁気データープ、不揮発性のメモリーカード、ROMを用いることができる。

【0141】また、コンピュータが読み出したプログラムコードを実行することにより、前述した実施形態の機能が実現されるだけではなく、そのプログラムコードの指示に基づき、コンピュータ上で稼動しているOSなどが実際の処理の一部または全部を行い、その処理によつて前述した実施形態の機能が実現される場合も含まれることは言うまでもない。さらに、記憶媒体から読み出されたプログラムコードが、コンピュータに挿入された複数個ボードやコンピュータに接続された複数部品によって構成されるメモリに書き込まれた後、次のプログラムコードを指示に基づき、その並び順能を並列ボードや機能を並列ユニットに書きわるCPUなどが実際の処理を行つて実際の処理の一部または全部を行い、その処理によって前述した実施形態の機能が実現される場合も含まれることは言うまでもない。

【0142】このように、ステップS 6.2.4の処理を繰り返すことで、実行順列に達した全てのスケジュールジョブを確実に実行する。

【0143】プリント指示コマンドの表示部コア部2はプリント指示されたジョブの次のWeb.Pull. Print. Print開始日時を決定し、再度ジョブをスケジュールジョブへ登録する(ステップS 6.2.4)。そして再び現在の日付/時間がリストの先頭ジョブの指定開始日付/時間に達しているか否かをチェックする(ステップS 3.2.5)。コマンド受け取り処理(ステップS 3.2.1)にて取得されたコマンドは、即時ジョブとして処理され、HTTPクライアント処理(ステップS 3.2.2)に記述され、それ以降は前述と同様の処理が行なわれる。

【0144】プリント指示コマンドの表示部コア部2はプリント指示されたジョブの次のWeb.Pull. Print. Print開始日時を決定し、再度ジョブをスケジュールジョブへ登録する(ステップS 6.2.4)。そして再び現在の日付/時間がリストの先頭ジョブの指定開始日付/時間に達しているか否かをチェックする(ステップS 3.2.5)。このように、ステップS 6.2.4からステップS 6.2.4の処理を繰り返すことで、実行順列に達した全てのスケジュールジョブを確実に実行する。

【0145】なお、本実施形態では、ネットワークの通信プロトコルにTCP/IPを用いて説明したが、IPX、SPPX及びAPP10～14等の通信プロトコルを用いても同様の効果が得られる。また、クライアントサーバー間の通信プロトコルを用いても同様の効果が得られる。

【0146】プリントユーティリティの操作画面を示す図である。

【0147】プリントユーティリティの操作画面を示す図である。

【0148】プリントユーティリティの操作画面を示す図である。

【0149】操作部5のコピーモードを示す図である。

【0150】操作部5のコピーモードの表示を示す図である。

【0151】操作部5のコピーモードの表示を示す図である。

【0152】操作部5のコピーモードの表示を示す図である。

【0153】操作部5のコピーモードの表示を示す図である。

【0154】操作部5のコピーモードの表示を示す図である。

【0155】操作部5のコピーモードの表示を示す図である。

【0156】操作部5のコピーモードの表示を示す図である。

【0157】操作部5のコピーモードの表示を示す図である。

【0158】操作部5のコピーモードの表示を示す図である。

【0159】操作部5のコピーモードの表示を示す図である。

【0160】操作部5のコピーモードの表示を示す図である。

【0161】操作部5のコピーモードの表示を示す図である。

【0162】操作部5のコピーモードの表示を示す図である。

【0163】操作部5のコピーモードの表示を示す図である。

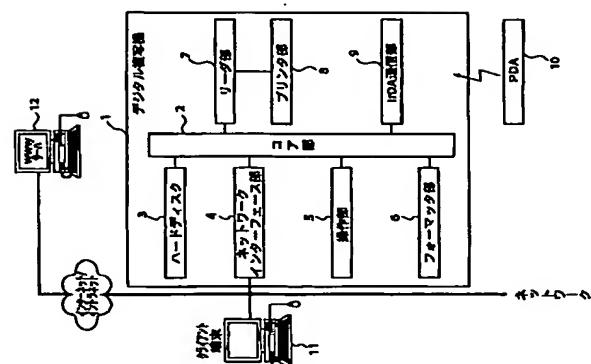
【0164】操作部5のコピーモードの表示を示す図である。

【0165】操作部5のコピーモードの表示を示す図である。

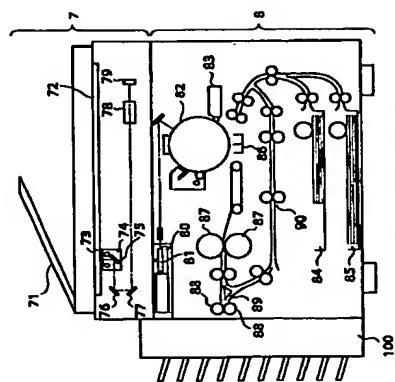
【0166】操作部5のコピーモードの表示を示す図である。

【0167】操作部5のコピーモードの表示を示す図である。

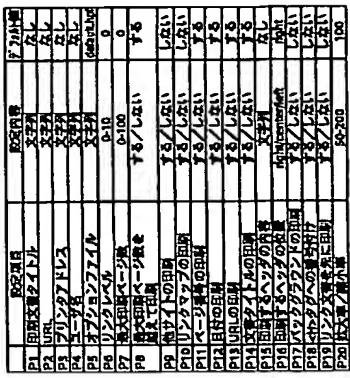
[図1]



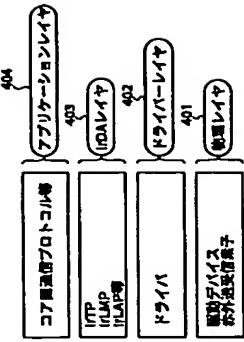
[図2]



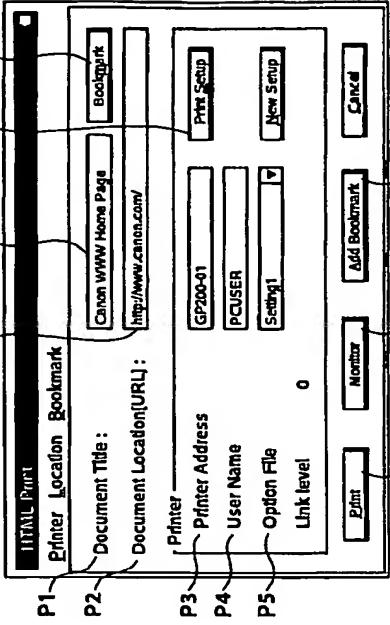
[図5]



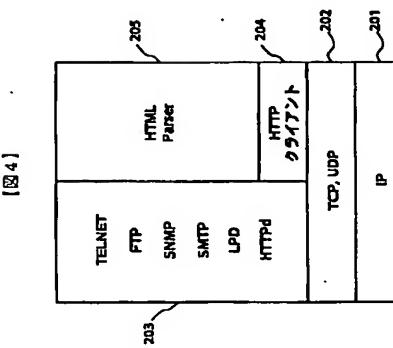
[図15]



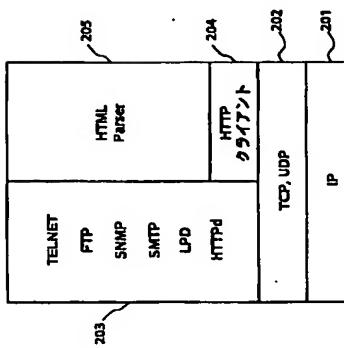
[図1]

211
212
210
211

[図7]



[図4]



[図6]

P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20
7414	7414	7414	7414	7414	7414	7414	7414	7414	7414	7414	7414	7414	7414	7414	7414	7414	7414	7414	7414
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
smallmedium																			
regular																			
Letter																			
Portrait																			
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120

[図1]

H - Host name
J - Job name
P - User identification

P1	P2	P3	P4	P5	P6	P7
PC001	LF	'www.canon.com'	LF	"Printche"		
215	216	214				

[図 1.8]

HTML Print Preview

HTML Print Options HTML Print Style PostScript Option Schedule

Job Options

P6 Link Level 3 (Is unlimited)

P7 Max Print Pages 20 (Is unlimited)

P8 Complete Job over Max Print Page

P9 Go to other site

Page Options

P10 Print Link Map

P14 Print Document Title

P11 Print Page Number

P12 Print Date

P13 Print Document Location (URL)

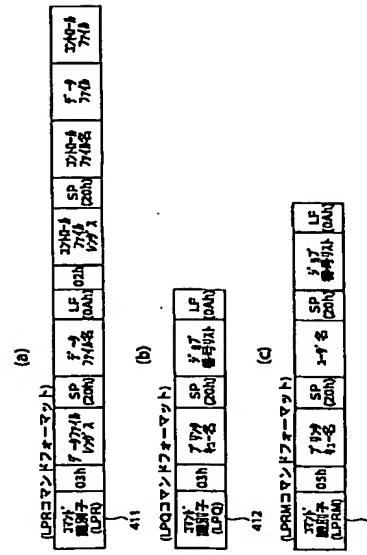
P15 Print Header Position Top Bottom

Header Text

OK Cancel

16 220 221

[図 1.8]



[図 1.9]

HTML Print Preview

HTML Print Options HTML Print Style PostScript Option Schedule

P17 Print Background

P18 Chapter Number for <ch> Tags

P19 Print Hyper Linked Document First

P20 Scale Up and Down

P21 Set boundary Page 100%

P22 Style Sheet

P23 Font for <ch> Tags

P24 Font Face

P25 Font Size

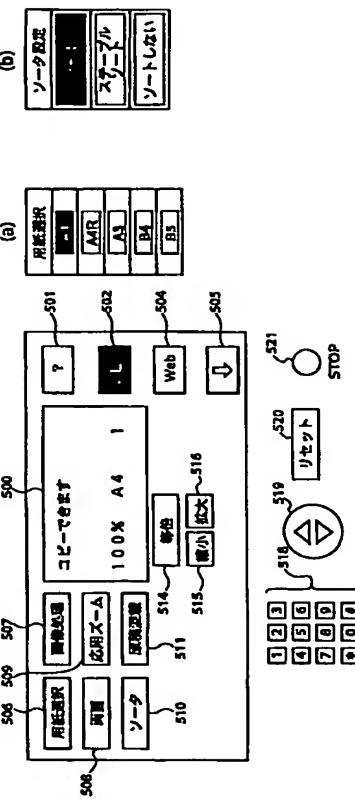
P26 Font Weight

P27 URL

OK Cancel

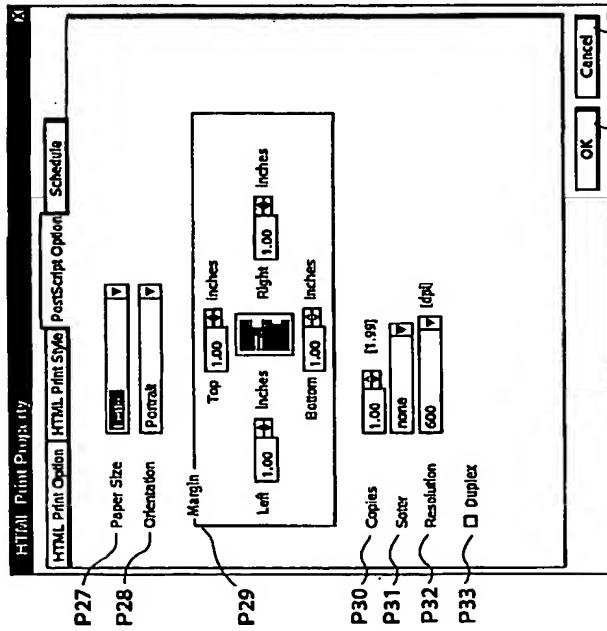
230 231

[図 1.9]

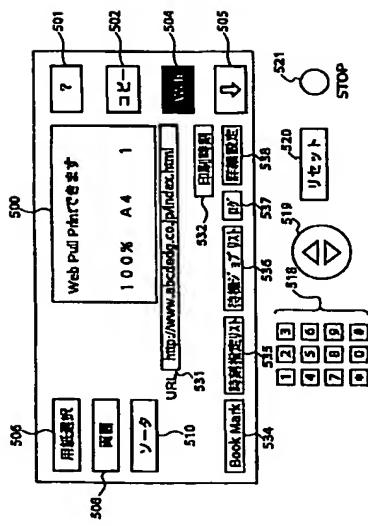


[図 2.0]

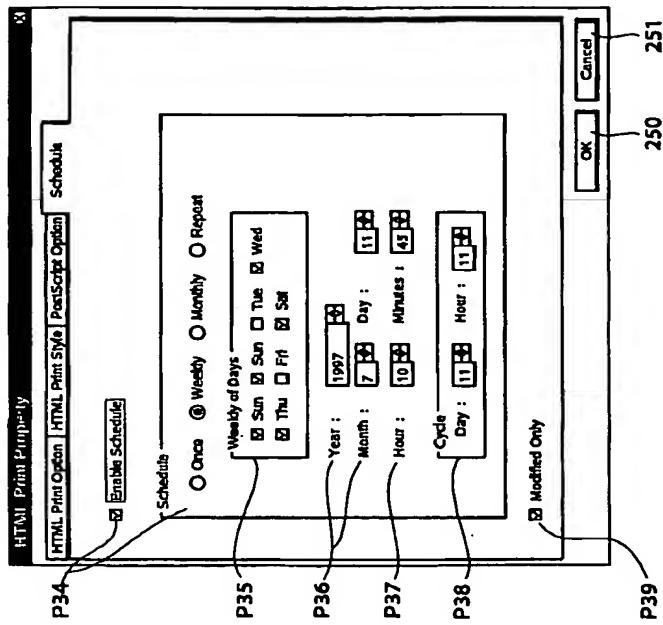
[110]



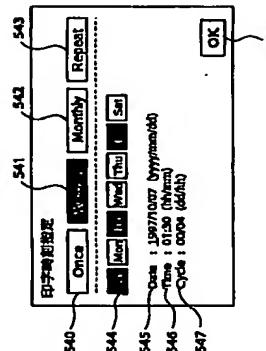
[图211]



111



10321



182

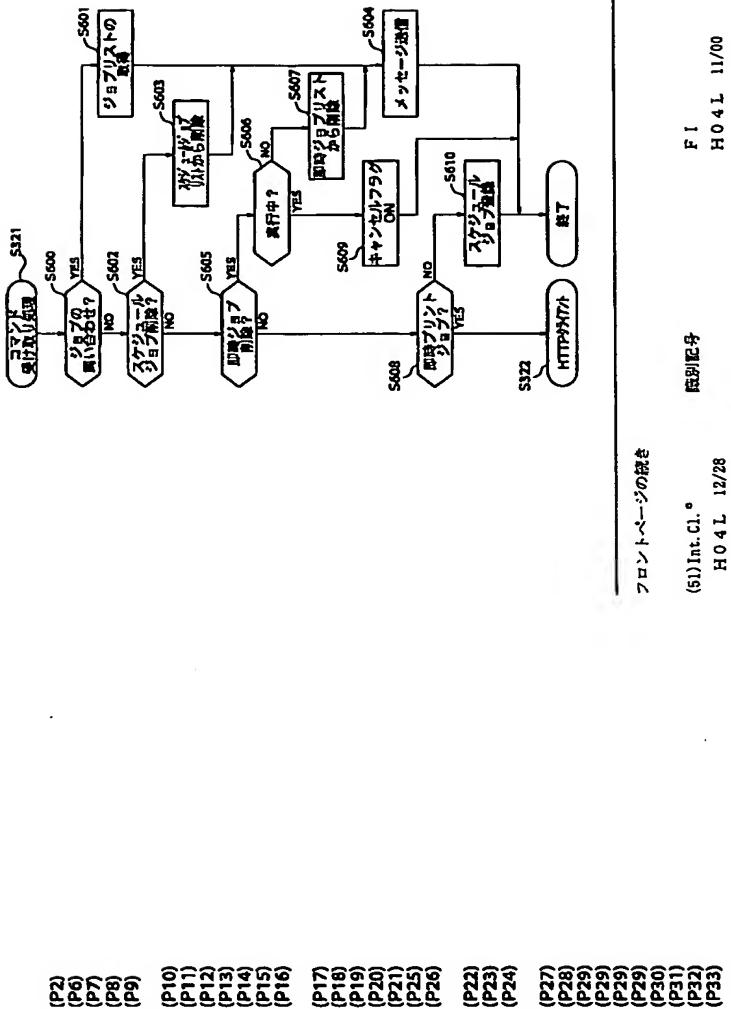
[図1.6]

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LinkLevel=0
MaxPrintNum=0
EndAfterComp=yes
GoOtherSite=yes
[Additional Info]
PrintInkMap=yes
PrintPageNum=yes
PrintDate=yes
PrintURL=yes
PrintTitle=yes
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HeaderPos=right
[Style]
DrawBackground=no
HeaderNumOn=no
NestFirst=no
Ratio=100
MinimumScaleAIPaging=100
StyleSheet=css
CSS=http://www.canon.co.jp/style.css
[CSSFont]
FontFace=none
FontSize=regular
FontWeight=medium
[PostScript]
PageSize=letter
Orientation=portrait
LeftMargin=35
RightMargin=15
TopMargin=15
BottomMargin=20
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Sonestaple
Resolution=600
Duplex=yes
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Sun=yes
Mon=no
Tue=yes
Wed=no
Thu=yes
Fri=no
Sat=no
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Time=2210
Cycle=0004
ModifiedOnly=no
END_OF_NETRETRIEVER_PARAMETERS

```

[図2.7]



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